4. **Access road gates** shall be 16 feet in width consisting of two swinging sections 8 feet in width. Additional vehicular access gates may be required as needed to facilitate maintenance access.
5. **Pedestrian access gates** (if needed) shall be 4 feet in width.
6. For fences to be maintained by the County, **fence material** shall be vertical metal balusters or 9 gauge galvanized steel fabric with bonded vinyl coating. For steel fabric fences, the following apply:
   a) **Vinyl coating** shall be compatible with the surrounding environment (e.g., green in open, grassy areas and black or brown in wooded areas). All posts, cross bars, and gates shall be painted or coated the same color as the vinyl clad fence fabric.
   b) **Fence posts and rails** shall conform to WSDOT Standard Plan L-2 for Types 1, 3, or 4 chain link fence.
7. For **metal baluster fences**, Uniform Building Code standards shall apply.
8. **Wood fences are allowed** in subdivisions where the fence will be maintained by homeowners associations or adjacent lot owners. Fence maintenance requirements shall be a condition of subdivision approval, and a statement detailing maintenance responsibilities and requirements must be recorded with the plat.
9. Wood fences shall have **pressure treated posts** (ground contact rated) either set in 24-inch deep concrete footings or attached to footings by galvanized brackets. Rails and fence boards shall be cedar or pressure-treated fir or hemlock.
10. Where only **short stretches of the pond perimeter** (< 10%) have side slopes steeper than 3:1, split rail fences (3-foot minimum height) or densely planted thorned hedges (e.g., barberry, holly, etc.) may be used in place of a standard fence.

Signage

Detention ponds, infiltration ponds, wetponds, and combined ponds to be maintained by King County shall have a sign placed for maximum visibility from adjacent streets, sidewalks, and paths. The sign shall meet the design and installation requirements illustrated in Figure 5.3.1.D (p. 5-29).

Right-of-Way

1. Open detention ponds shall not be located in dedicated public road right-of-way.
2. Detention ponds to be maintained by King County shall be in a tract dedicated to King County (see Section 1.2.6). Any tract not abutting public right-of-way will require a 15-foot wide extension of the tract to an acceptable access location.

Setbacks

1. A setback of 5 feet from the **toe of the exterior slope**, retaining walls and rockeries to the tract or property line is required for County-maintained ponds and recommended for privately maintained ponds.
2. The tract or property line on a detention pond cut slope shall be setback 5 feet from the **emergency overflow water surface**.
3. The detention pond water surface at the pond outlet invert elevation shall be setback 100 feet from **proposed or existing septic system drainfields**. This setback may be reduced with written approval of the Seattle-King County Department of Public Health.

Seeps and Springs

Intermittent seeps along cut slopes are typically fed by a shallow groundwater source (interflow) flowing along a relatively impermeable soil stratum. These flows are storm driven and should discontinue after a few weeks of dry weather. The KCRTS model accounts for this shallow groundwater component, and no

special provisions are needed when directing these flows through the flow control facility. However, more continuous seeps and springs, which extend through longer dry periods, are likely from a deeper groundwater source. When continuous flows are intercepted and directed through flow control facilities, adjustments to the approved facility design may be required to account for the additional base flow (unless already considered in design). If uncertain at the time of construction, the situation may be monitored while the facility is under maintenance and defect financial guarantee. Adjustments to the facility may be required prior to the release of the financial guarantee.

Planting Requirements

Exposed earth on the pond bottom and interior side slopes shall be sodded or seeded with an appropriate seed mixture. All remaining areas of the tract must either be planted with grass, or be landscaped in accordance with the standards below and mulched with a 4-inch cover of hog fuel or shredded wood mulch.[7]

Landscaping

Landscaping for aesthetic purposes is encouraged, but not required, for most stormwater tract areas containing ponds maintained by King County (see below for areas not to be landscaped). However, if provided, landscaping must adhere to the criteria that follow so as not to hinder maintenance operations. Landscaped stormwater tracts may, in some instances, be used to satisfy requirements for recreational space. In other instances, "naturalistic" stormwater facilities may be placed in open space tracts. For more information, see page 5-25.

If landscaping is proposed in the stormwater tract of a County-maintained pond, the following requirements shall apply:

1. **No trees or shrubs may be planted within 10 feet of inlet or outlet pipes** or manmade drainage structures such as catch basins, spillways or flow spreaders. Species with roots that seek water, such as willow or poplar, should be avoided within 50 feet of pipes or manmade structures.
2. **Planting is restricted on berms that impound water** either permanently or temporarily during storms. *Note: This restriction does not apply to cut slopes that form pond banks, only to berms.*

    a) Trees or shrubs may not be planted on portions of water-impounding berms taller than four feet high. Only grasses may be planted on berms taller than four feet.

    Intent: Grasses allow unobstructed visibility of berm slopes for detecting potential dam safety problems such as animal burrows, slumping, or fractures in the berm.

    b) Trees planted on portions of water-impounding berms less than 4 feet high must be small, not higher than 20 feet mature height, and have a fibrous root system. Table 5.3.1.A gives some examples of trees with these characteristics.

    Intent: These trees reduce the likelihood of blow-down trees, or the possibility of channeling or piping of water through the root system, which may contribute to dam failure on berms that retain water.
3. All landscape material, including grass, must be **planted in good topsoil**. Native underlying soils may be made suitable for planting if amended with 2 inches of well-rotted compost tilled into the top six inches of soil. Compost used should meet Ecology publication 94-38 specifications for Grade A compost quality.
4. Soil in which **trees or shrubs** are planted may require additional enrichment or additional compost top-dressing. Consult a nurseryman, landscape professional, or arborist for site-specific recommendations.

[7] Shredded wood mulch is made from shredded tree trimmings, usually from trees cleared onsite. It must be free of garbage and weeds and may not contain excessive resin, tannin, or other material detrimental to plant growth.

5. For a naturalistic effect as well as ease of maintenance, trees or shrubs must be **planted in clumps** to form "*landscape islands*" rather than evenly spaced.
6. The **landscaped islands** must be planted above the 100-year water surface and must be a minimum of six feet apart, and if set back from fences or other barriers, the setback distance must also be a minimum of six feet. Where tree foliage extends low to the ground, the six feet of setback should be counted from the outer drip line of the trees (estimated at maturity).

   Intent: This landscape design must allow a 6-foot wide mower to pass around and between clumps.
7. Evergreen trees and trees that produce relatively little leaf-fall such as Oregon ash, mimosa, or locust are preferred. Large-leaf deciduous trees may not be planted where branches could extend over interior pond slopes.
8. All trees shall be set back so branches do not extend over the 100-year water surface of the pond to prevent leaf-drop into the water.
9. Drought tolerant species are recommended.
10. Landscape areas within the tracts of County-maintained ponds in residential subdivision developments shall be designated "to be maintained by the homeowner's association."

TABLE 5.3.1.A SMALL TREES AND SHRUBS WITH FIBROUS ROOTS

Small Trees / High Shrubs	Low Shrubs
*Red twig dogwood (*Cornus stolonifera*)	*Snowberry (*Symphoricarpus albus*)
*Serviceberry (*Amelanchier alnifolia*)	*Salmonberry (*Rubus spectabilis*)
Strawberry tree (*Arbutus unedo*)	*Rosa rugosa* (avoid spreading varieties)
Highbush cranberry (*Vaccinium opulus*)	Rock rose (*Cistus* spp.)
Blueberry (*Vaccinium* spp.)	Ceanothus spp. (choose hardier varieties)
*Filbert (*Corylus cornuta*, others)	New Zealand flax (*Phormium penax*)
Fruit trees on dwarf rootstock	
Rhododendron (native and ornamental varieties)	Ornamental grasses (e.g., *Miscanthis*, *Pennisetum)*

* *Native species*

Guidelines for Naturalistic Planting

Stormwater facilities may sometimes be located within open space tracts if "natural appearing" (see page 5-25 for details). Two generic kinds of naturalistic planting are outlined below, but other options are also possible. A booklet discussing stormwater ponds and landscaping possibilities is available at the Water and Land Resources Division; when completed, it should be consulted for additional ideas. Native vegetation is preferred in naturalistic plantings.

Note: These landscaping criteria must be followed unless a landscape professional judges that long-term quality of the open space would be improved by deviating from the criteria, AND that if the facility is maintained by the County, maintenance would not be made more difficult by the deviations.

Open Woodland

In addition to the general landscaping criteria above, the following requirements must be met:

1. Landscaped islands (when mature) should cover a minimum of 30% or more of the tract, exclusive of the pond area.
2. Tree clumps should be underplanted with shade-tolerant shrubs and groundcover plants. The goal is to provide a dense understory that need not be weeded or mowed.
3. Landscaped islands should be placed at several elevations rather than "ring" the pond, and the size of clumps should vary from small to large to create variety.
4. Not all islands need have trees. Shrub or groundcover clumps are acceptable, but lack of shade should be considered in selecting vegetation.

Note: Landscaped islands are best combined with the use of hog fuel or shredded wood mulch for erosion control (only for slopes above the flow control water surface). It is often difficult to sustain a low-maintenance understory if the area was previously hydroseeded.

Northwest Savannah or Meadow

In addition to the general landscape criteria above, the following requirements must be met:

1. Landscape islands (when mature) should cover 10% or more of the tract, exclusive of the pond area.
2. Planting groundcovers and understory shrubs is encouraged to eliminate the need for mowing under the trees when they are young.
3. Landscape islands should be placed at several elevations rather than "ring" the pond.
4. The remaining tract area should be planted with an appropriate grass seed mix, which may include northwest meadow or wildflower species. Native or dwarf grass mixes are preferred. Table 5.3.1.B below gives one acceptable dwarf grass mix. Grass seed should be applied at 2.5 to 3 pounds per 1000 square feet. *Note: Amended soil or good topsoil is required for all plantings.*
5. Creation of areas of emergent vegetation in shallow areas of the pond is recommended. Native wetland plants, such as sedges (*Carex* sp.), bulrush (*Scirpus* sp.), water plantain (*Alisma* sp.), and burreed (*Sparganium sp.*) are recommended. If the pond does not hold standing water, a clump of wet-tolerant, non-invasive shrubs, such as salmonberry or snowberry, is recommended below the detention design water surface.

Note: This landscape style is best combined with the use of grass or sod for site stabilization and erosion control.

TABLE 5.3.1.B STORMWATER TRACT "LOW-GROW" SEED MIX

Seed Name	Percentage of Mix
Dwarf tall fescue	40%
Dwarf perennial rye "Barclay" *	30%
Red fescue	25%
Colonial bentgrass	5%

* If wildflowers are used and sowing is done before Labor Day, the amount of dwarf perennial rye may be reduced proportionately to the amount of wildflower seed used.

Detention Ponds in Recreational Tracts

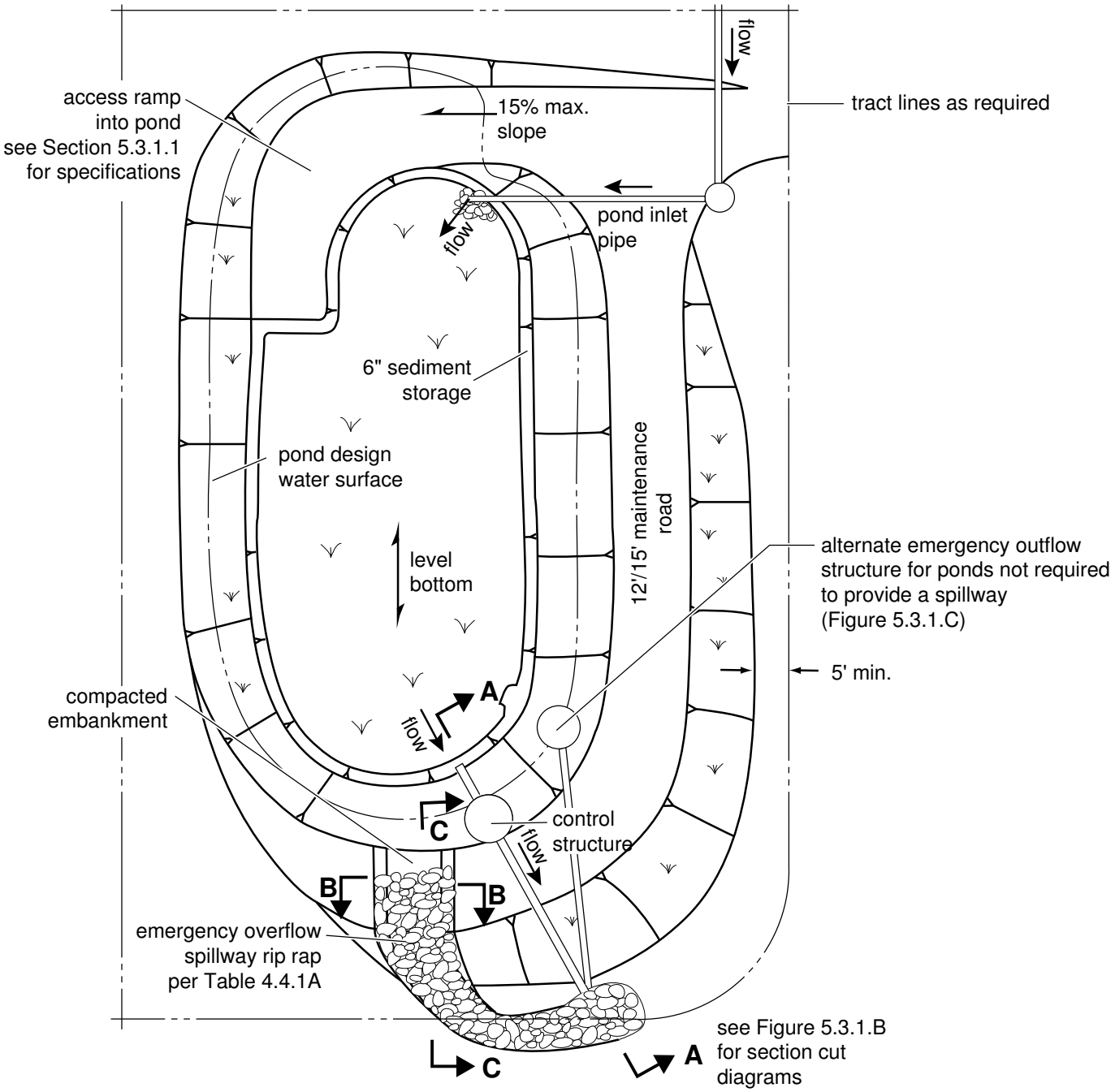
Projects required to provide onsite recreational space per KCC 21A.14.180 may combine the detention pond tract with the recreation space tract to receive a 50% reduction in required onsite recreational space. To receive the 50% credit, the following criteria must be met as required by KCC 21A.14.180.D:

1. The proposed stormwater tract must be dedicated or reserved as a part of a recreational space tract.
2. The stormwater pond must be constructed to meet the following requirements:
    a) Side slopes shall not exceed 33 percent unless they are existing, natural, and covered with vegetation.
    b) A bypass system or an emergency overflow pathway shall be designed to handle flow exceeding the facility design and located so that it does not pass through active recreation areas or present a safety hazard.
    c) The stormwater pond shall be landscaped in a manner to enhance passive recreational opportunities such as trails and aesthetic viewing.
    d) The stormwater pond shall be designed so that it does not require fencing per the fencing requirements on page 5-20.
3. Where a tract is jointly used for recreational space and King County maintained drainage facilities, the County is only responsible for maintenance of the drainage facilities, and an access easement shall be provided for that purpose.

Detention Ponds in Open Space

Open space areas reserved through the **four-to-one program** may be used to site "natural appearing" stormwater facilities if they are found to be compatible with the open space value and functions, and if they are located on a "small portion of the open space" (Amended policy I-204, King County Comprehensive Plan). Conscientious application of the "Guidelines for Naturalistic Plantings" (p. 5-23) typically will produce natural-appearing stormwater facilities. A site-specific assessment is needed, however, to determine whether the stormwater tract would be compatible with the open space value and functions.

FIGURE 5.3.1.A TYPICAL DETENTION POND



NOTE:
This detail is a schematic representation only. Actual configuation will vary depending on specific site constraints and applicable design criteria.